



# **TECHNICAL NOTES**



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### DATA SOURCES, COMPLETENESS, AND IMPUTATIONS

#### Sources of Data

Louisiana law requires that certificates of vital events be submitted to the Department of Health and Hospitals, Office of Public Health, Vital Records Registry Program. The Vital Records Registry Program is charged with the responsibility of recording and preserving the submitted documents. The Office of Public Health's State Center for Health Statistics is assigned the tasks of tabulating, analyzing, summarizing, and disseminating statistical information recorded on vital certificates.

Unless otherwise noted, statistics presented in this report were obtained from information found on certificates registered with the Vital Records Registry Program and analyzed by the State Center for Health Statistics. Records of vital events occurring outside the state to residents of Louisiana were obtained from transcripts of certificates made available through a nationwide system of interchange among all states and territories. National-level data were extracted from publications of the National Center for Health Statistics.

United States data were obtained from publications of the National Center for Health Statistics. Data and information other than that provided from the Vital Records Registry Program are footnoted wherever they appear in this report.

#### Completeness of Data

**Births:** Matching of infant death certificates with the corresponding birth certificates indicates that birth registration in Louisiana is approximately 97 percent complete<sup>1</sup>. This figure is considered an underestimate of completed certificates, since some certificates may fail to be included in the matching process due to differences in key variables on the birth and death certificates. Under-registration of births for infants who die shortly after they are born is another contributing factor and in some cases birthing facilities have not registered births in a timely fashion.

**Deaths:** Death registration is considered to be close to 100 percent complete, as each death certificate is tied to a burial permit issued by the State. However, it is recognized that some under-registration does occur: certificates may not be issued for infants dying shortly after birth or for the unclaimed remains of a decedent.

**Spontaneous Fetal Deaths:** The extent of completeness of information on spontaneous fetal deaths (stillbirths) is not known, but some under-registration is likely, especially for those occurring near 20 weeks gestation.

**Induced Termination of Pregnancy:** The Vital Records Registry receives certificates on most abortions performed in Louisiana, but the information recorded on the filed certificates is often incomplete. Although some states notify Louisiana of abortions obtained by Louisiana residents, Louisiana cannot reciprocate; a federal court decision prohibits the collection of residency information on women who terminate pregnancies within the state. Hence, no accurate count of terminations among Louisiana residents is available.

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<sup>1</sup> National Center for Health Statistics, "Infant Mortality Statistics from the 2000 Period Linked Birth/Infant Death Data Set" [National Vital Statistics Report](#) 50:12 (Aug. 2002):22

**Marriage:** The statistics presented in the Vital Statistics Report are based upon Marriage Certificates filed annually with the Vital Records Registry for marriages occurring in the state. These data are incomplete since the total number of marriages celebrated in each parish may not be reported to the state Vital Records Registry.

**Divorce:** Louisiana divorce statistics are incomplete. In 2001, 19% of the parishes in the state failed to report divorce information to the Vital Records Registry. The divorce tabulations reported by the State Center for Health Statistics included counts made by the Clerks of Courts as well as data derived from actual certificates received in the central office. Because of the magnitude of its underreporting, Louisiana is excluded from the national divorce registration system.

### Missing Data

In the *State Summary* sections of this report, data presented in tables and figures exclude records that are missing the information being described. In the Parish and Region Tables, however, missing data have been imputed as follows:

- "Sex" is allocated male or female depending on whether the last digit of the record identification number is even or odd, except in the case of death where the underlying cause is sex-specific.
- "Race" is assigned to match that of the previous record, giving a probability of assignment to white, black, or other that is consistent with the racial distribution of the data set.
- "Parish of Residence" is assumed to be "Parish of Occurrence" when residence parish is missing for live births or for infants dying under 1 year of age.

### Place of Residence vs. Place of Occurrence

Vital events are classified by Place of Residence or by Place of Occurrence. Place of Residence is defined as the residence of the deceased for a death and as the residence of the mother for a birth or stillbirth. Place of Occurrence is defined as the geographic location where the event occurred. All tables refer to events occurring to Louisiana residents except as noted.

### Cities Located in Two Parishes

The following cities span parish boundaries:

- Bossier City – Primarily in Bossier Parish, partly in Caddo Parish.
- Shreveport – Primarily in Caddo Parish, partly in Bossier Parish.
- Eunice – Primarily in St. Landry Parish, partly in Acadia Parish.
- De Ridder – Primarily in Beauregard Parish, partly in Vernon Parish.

In this report, the city is reported as a single entity in the primary parish, and all events are allocated to that city. However, at the parish level the event is allocated to the actual parish of occurrence. As an illustration, if a birth occurs in the portion of Shreveport that falls in Bossier Parish, it is reported in the Shreveport city count printed below Caddo Parish, but is not included in the Caddo Parish birth count. It is, instead, included in the Bossier Parish birth count. There is a possibility that this reallocation may show more events in a city than in the parish where the city is primarily located.

### Comparability of National and State Data

Numbers and rates published in state tables by the National Center for Health Statistics (NCHS) may vary slightly from data published by Louisiana's State Center for Health Statistics due to differences in the assumptions applied to the data.

## PARISH AND REGION TABLES

Beginning with the 2000 Louisiana Vital Statistics Report, parish and region tables are included in two diskettes located in a pocket folder in the cover of the printed publication. For online readers of this report, parish and region tables can be found under the Vital Statistics Data Tables for the year 2001 in the Center's Directory of Vital Statistics Publications at:

<http://www.oph.dhh.state.la.us/recordsstatistics/statistics>

### Parish Tables

Tables included in the *Parish Tables* sections of this report contain data for Louisiana's 64 parishes and for the major cities within each parish. Data entries for major cities are listed below the parish entries. Cities are labeled with an asterisk (\*) following the city name.

All crude rates included in the *Parish Tables* sections of this report have been calculated using Louisiana Technical University (LATEch) Data for 2001. All age-adjusted rates included in the *Deaths* section of this report have been calculated using U.S. Census Data for 2000 and the 2000 U.S. Standard population.

### Region Tables

Tables included in the *Region Tables* sections of this report contain data for the Office of Public Health's nine administrative regions. These regions contain the following parishes:

#### **Region 1 (Metropolitan)**

Jefferson  
Orleans  
Plaquemines  
St. Bernard

#### **Region 2 (Capitol)**

Ascension  
East Baton Rouge  
East Feliciana  
Iberville  
Pointe Coupee  
West Baton Rouge  
West Feliciana

#### **Region 3 (Teche)**

Assumption  
Lafourche  
St. Charles  
St. James  
St. John  
St. Mary  
Terrebonne

#### **Region 4 (Acadian)**

Acadia  
Evangeline  
Iberia  
Lafayette  
St. Landry  
St. Martin  
Vermilion

#### **Region 5 (Southwest)**

Allen  
Beauregard  
Calcasieu  
Cameron  
Jefferson Davis

#### **Region 6 (Central)**

Avoyelles  
Catahoula  
Concordia  
Grant  
LaSalle  
Rapides  
Vernon  
Winn

#### **Region 7 (Northwest)**

Bienville  
Bossier  
Caddo  
Claiborne  
DeSoto  
Natchitoches  
Red River  
Sabine  
Webster

#### **Region 8 (Northeast)**

Caldwell  
East Carroll  
Franklin  
Jackson  
Lincoln  
Madison  
Morehouse  
Ouachita  
Richland  
Tensas  
Union  
West Carroll

#### **Region 9 (Southeast)**

Livingston  
St. Helena  
St. Tammany  
Tangipahoa  
Washington

All regional crude rates included in the *Region Tables* sections of this report have been calculated using 2001 population estimates provided by Louisiana Technical University (LATEch).

**POPULATION DATA**

In the *State Summary* sections of this report, census data for the year 2000 provided by the United States Census Bureau were used to calculate state-level rates for demographic subgroups (race, sex, age). Population files are from the U.S. Census Bureau website ([www.census.gov](http://www.census.gov)). Age-adjusted death rates were calculated using the 2000 standard population.

In the *Parish Tables* and *Region Tables* sections of this report, crude rates for total populations at state, region, and parish levels were calculated using Louisiana Technical University (LATech) Data for 2001.

## BIRTH DATA

### Race

Prior to 1989, the race reported in birth data tables was the inferred race of the child. Beginning in 1989, the race of the newborn is established by the race of the mother.

### Place of Residence

Place of Residence is defined as the residence of the mother for a birth or stillbirth.

### Adequate Prenatal Care (modified Kessner Index definition):

1. Care must begin in the first trimester
2. The number of required prenatal visits varies with gestational age and is as follows:

17 weeks gestation requires two or more visits  
18-21 weeks gestation requires three or more visits  
22-25 weeks gestation requires four or more visits  
26-29 weeks gestation requires five or more visits  
30-31 weeks gestation requires six or more visits  
32-33 weeks gestation requires seven or more visits  
34-35 weeks gestation requires eight or more visits  
36 weeks gestation requires nine or more visits

### Weight Equivalents

Equivalents of the gram weight in terms of pounds and ounces are shown below:

453.6 grams = 1 pound  
Under 500 grams = 1 pound 1 ounce or less  
500- 999 grams = 1 pound 2 ounces - 2 pounds 3 ounces  
1000-1499 grams = 2 pounds 4 ounces - 3 pounds 4 ounces  
1500-1999 grams = 3 pounds 5 ounces - 4 pounds 6 ounce  
2000-2499 grams = 4 pounds 7 ounces - 5 pounds 8 ounces  
2500-2999 grams = 5 pounds 9 ounces - 6 pounds 9 ounces  
3000-3499 grams = 6 pounds 10 ounces - 7 pounds 11 ounces  
3500-3999 grams = 7 pounds 12 ounces - 8 pounds 13 ounces  
4000-4499 grams = 8 pounds 14 ounces - 9 pounds 14 ounces  
4500-4999 grams = 9 pounds 15 ounces - 11 pounds 0 ounces  
5000 grams or > = 11 pounds 1 ounce or more

**Gestational Age**

The attending physician records gestational age on the birth certificate. Physicians use several different methods to estimate gestational age, including computing the interval between the first day of the mother's last normal menstrual period (LMP) and the date of birth, or determining a clinical estimate based on examination of the newborn. Because these methods have inherent limitations (for example, imperfect maternal recall of LMP), measurement of gestational age is imprecise. Without standardized methods of measurement, determination of gestational age will remain an issue, especially among at-risk pregnancies in which few or no prenatal ascertainties are made.

Louisiana Birth Certificates record both the "Date Last Normal Menses Began" and the "Clinical Estimate of Gestation." The "Clinical Estimate of Gestation" is used to determine gestational age in the *Live Births* section of this report.

**Birthweight**

For parish and region tables with information regarding the weight of the live birth, those live births less than 10 grams are reassigned to "unknown".

**Number of Prenatal Visits**

For parish and region tables with reference to Adequate Prenatal Care, live births for which the mother had more than 50 prenatal visits are reassigned to "unknown".

**Birth Rates for Mothers under Age 15 Years and Over Age 45 Years**

The following conventions are used when calculating rates for mothers younger than age 15 years or older than age 44 years:

- For age categories labeled "Under 15", the numerator is all live births to mothers under 15 years of age. Mothers who are younger than 8 years of age are reassigned to "unknown". The denominator is the female population aged 10 through 14 years.
- For age categories labeled "45 & Older", the numerator is all live births to mothers aged 45 years and older. Mothers older than 54 years of age are reassigned to "unknown". The denominator is the female population aged 45 through 49 years.



## SPONTANEOUS FETAL DEATH DATA (STILLBIRTH)

### Definition of a Spontaneous Fetal Death

Louisiana defines a spontaneous fetal death (stillbirth) as a death to a fetus with gestational age of at least 20 weeks or birthweight of at least 350 grams. The National Center for Health Statistics (NCHS) uses only gestational age (at least 20 weeks) to define a fetal death.

The calculation of tables and figures for this report varies between the Louisiana and NCHS definitions, depending upon whether the data are intended for comparison to national data. The definition used is specified following each table or figure.

### Estimation of Gestational Age

Beginning with the *1997 Louisiana Vital Statistics Report*, gestational ages for fetal deaths occurring in or after 1995 are reported based upon the National Center for Health Statistics formula for calculation of gestational age for fetal deaths. This formula calculates gestational age by combining information collected in the "Date Last Normal Menses Began" and "Clinical Estimate of Gestation" sections of the Louisiana Certificate of Fetal Death (Stillbirth).

Gestational ages reported for years prior to 1995 were calculated by subtracting the "Date Last Normal Menses Began" from the "Date of Delivery," as recorded on the Fetal Death Certificate.

### Cause of Death Coding

Please refer to the **DEATH DATA** section of this chapter (page 160) for details concerning the International Statistical Classification of Diseases, Injuries, and Causes of Death (ICD).

The complete list of 146 selected causes of fetal death that should appear in *Table F10* follows below.

Certain infectious and parasitic diseases (A00-B99)	Other hernia (K40-K41, K43-K46)
Congenital syphilis (A50)	Other and unspecified diseases of digestive system (K00-K38, K50-K92)
Human immunodeficiency virus (HIV) disease (B20-B24)	All other diseases, excluding signs & ill-defined conditions, perinatal conditions, congenital anomalies, & symptoms (D65-89, I00-J98, L00-N98)
Other viral diseases (A80-B19, B25-B34)	Certain conditions originating in the perinatal period (P00-P96)
Other and unspecified infectious and parasitic diseases (A00-A49, A51, A79, B35-B99)	Fetus affected by maternal conditions that may be unrelated to present pregnancy (P00)
Malignant neoplasms (C00-C97)	Fetus affected by maternal hypertensive disorders (P00.0)
In situ neoplasms, benign neoplasms and neoplasms of uncertain or unknown behavior (D00-D48)	Fetus affected by maternal renal and urinary tract diseases (P00.1)
Anemias (D50-D64)	Fetus affected by maternal infectious and parasitic diseases (P00.2)
Endocrine, nutritional and metabolic diseases (E00-E88)	Fetus affected by other maternal circulatory and respiratory diseases (P00.3)
Short stature, not elsewhere classified (E34.3)	Fetus affected by maternal nutritional disorders (P00.4)
Cystic fibrosis (E84)	Fetus affected by maternal injury (P00.5)
Other endocrine, nutritional and metabolic diseases (E00-E32, E34.0- E34.2, E34.4-E34.9, E40-E83, E85-E88)	Fetus affected by surgical procedure on mother (P00.6)
Meningitis (G00, G03)	
Other diseases of nervous system and sense organs (G04-H93)	
Umbilical hernia (K42)	

Fetus affected by other medical procedures and maternal conditions (P00.7-P00.8)	Disorders related to long gestation and high birth weight (P08)
Fetus affected by unspecified maternal condition (P00.9)	Exceptionally large size and other heavy for gestational age fetus (P08.0-P08.1)
Fetus affected by maternal complications of pregnancy (P01)	Post-term, not heavy for gestational age fetus (P08.2)
Fetus affected by incompetent cervix (P01.0)	Birth trauma (P10-P15)
Fetus affected by premature rupture of membranes (P01.1)	Intracranial laceration and hemorrhage due to birth injury and other injuries to central nervous system (P10-P11)
Fetus affected by oligohydramnios (P01.2)	Other birth trauma (P12-P15)
Fetus affected by polyhydramnios (P01.3)	Intrauterine hypoxia and birth asphyxia (P20-P21)
Fetus affected by ectopic pregnancy (P01.4)	Intrauterine hypoxia first noted before onset of labor (P20.0)
Fetus affected by multiple pregnancies (P01.5)	Intrauterine hypoxia first noted during labor and delivery (P20.1)
Fetus affected by maternal death (P01.6)	Intrauterine hypoxia, unspecified (P20.9)
Fetus affected by malpresentation before labor (P01.7)	Birth asphyxia (P21)
Fetus affected by other and unspecified maternal complications of pregnancy (P01.8-P01.9)	Other respiratory conditions originating in the perinatal period (P23-P28)
Fetus affected by complications of placenta, cord and membranes (P02)	Congenital pneumonia (P23)
Fetus affected by placenta previa (P02.0)	Aspiration syndromes (P24)
Fetus affected by other forms of placental separation and hemorrhage (P02.1)	Interstitial emphysema and related conditions originating in the perinatal period (P25)
Fetus affected by other and unspecified morphological and functional abnormalities of placenta (P02.2)	Atelectasis (P28.0-P28.1)
Fetus affected by placental transfusion syndromes (P02.3)	Other respiratory system disorders (P26-P27, P28.2-P28.9)
Fetus affected by prolapsed cord (P02.4)	Infections specific to the perinatal period (P35-P39)
Fetus affected by other compression of umbilical cord (P02.5)	Congenital rubella syndrome (P35.0)
Fetus affected by other and unspecified conditions of umbilical cord (P02.6)	Congenital cytomegalovirus infection (P35.1)
Fetus affected by chorioamnionitis (P02.7)	Congenital herpes viral (herpes simplex) infection (P35.2)
Fetus affected by other and unspecified abnormalities of membranes (P02.8-P02.9)	Congenital viral hepatitis (P35.3)
Fetus affected by other complications of labor and delivery (P03)	Bacterial sepsis (P36)
Fetus affected by breech delivery and extraction (P03.0)	Congenital tuberculosis (P37.0)
Fetus affected by other malpresentation, malposition and disproportion during labor and delivery (P03.1)	Congenital toxoplasmosis (P37.1)
Fetus affected by forceps delivery (P03.2)	Other infections specific to the perinatal period (P35.8-P35.9, P37.2, P37.9, P38-P39)
Fetus affected by delivery by vacuum extractor (ventouse) (P03.3)	Fetal hemorrhage (P50-P54)
Fetus affected by cesarean delivery (P03.4)	Hemolytic disease of fetus (P55-P56)
Fetus affected by precipitate delivery (P03.5)	Rh isoimmunization of fetus (P55.0)
Fetus affected by abnormal uterine contractions (P03.6)	ABO isoimmunization of fetus (P55.1)
Fetus affected by other and unspecified complications of labor and delivery (P03.8-P03.9)	Other hemolytic disease of fetus (P55.8-P55.9)
Fetus affected by noxious influences transmitted via placenta (P04)	Hydrops fetalis due to hemolytic disease (P56)
Slow fetal growth and fetal malnutrition (P05)	Perinatal jaundice (P57-P59)
Disorders related to short gestation and low birth weight, not elsewhere classified (P07)	Hematological disorders (P60-P61)
Extremely low birth weight or extreme immaturity (P07.0, P07.2)	Transitory endocrine and metabolic disorders specific to fetus (P70-P74)
Other low birth weight and preterm (P07.1, P07.3)	Syndrome of infant of a diabetic mother and neonatal diabetes mellitus (P70.0-P70.2)
	Other transitory endocrine and metabolic disorders specific to fetus (P70.3-P70.9, P71-P74)
	Digestive system disorders of fetus (P76-P78)
	Other conditions originating in the perinatal period (P80-P96)

Hydrops fetalis not due to hemolytic disease (P83.2)  
 Fetal death of unspecified cause (P95)  
 Withdrawal symptoms from maternal use of drugs of addiction (P96.1)  
 Termination of pregnancy (P96.4)  
 Complications of intrauterine procedures, not elsewhere classified (P96.5)  
 All other specified conditions originating in the perinatal period (P80-P81, P83.0-P83.1, P83.3-P83.9, P90-P91, P93-P94, P96.0, P96.3, P96.8)  
 Condition originating in the perinatal period, unspecified (P96.9)  
 Congenital malformations, deformations and chromosomal abnormalities (Q00-Q99)  
 Congenital malformations of nervous system (Q00-Q07)  
 Anencephaly and similar malformations (Q00)  
 Encephalocele (Q01)  
 Microcephaly (Q02)  
 Congenital hydrocephalus (Q03)  
 Reduction deformities of brain (Q04.0-Q04.3)  
 Other congenital malformations of brain (Q04.4-Q04.9)  
 Spina bifida (Q05)  
 Other congenital malformations of spinal cord and nervous system (Q06, Q07)  
 Congenital malformations of eye, ear, face and neck (Q10-Q18)  
 Congenital malformations of heart (Q20-Q24)  
 Other congenital malformations of circulatory system (Q25-Q28)  
 Congenital malformations of lung (Q33)  
 Other congenital malformations of respiratory system (Q30-Q32, Q34)

Congenital malformations of digestive system (Q35-Q45)  
 Congenital malformations of genital organs (Q50-Q56)  
 Congenital malformations of urinary system (Q60-Q64)  
 Renal agenesis and other reduction defects of kidney (Q60)  
 Cystic kidney disease (Q61)  
 Other congenital malformations of urinary system (Q62-Q64)  
 Congenital malformations and deformations of musculoskeletal system, limbs and integument (Q65-Q85)  
 Other congenital malformations (Q86, Q89)  
 Conjoined twins (Q89.4)  
 Multiple congenital malformations, not elsewhere classified (Q89.7)  
 All other congenital malformations (Q86-Q87, Q89.0-Q89.3, Q89.8-Q89.9)  
 Chromosomal abnormalities, not elsewhere classified (Q90-Q99)  
 Down's syndrome (Q90)  
 Edward's syndrome (Q91.0-Q91.3)  
 Patau's syndrome (Q91.4-Q91.7)  
 Other chromosomal abnormalities, not elsewhere classified (Q92-Q99)  
 Symptoms, signs and abnormal, clinical and laboratory findings, not elsewhere classified (R83-R94)  
 External causes of mortality (V01-Y84)  
 Accidents (V01-X59)  
 Assault (homicide) (X85-Y09)  
 Complications of medical and surgical care (Y40-Y84)  
 Other external causes (Y10-Y36)

## DEATH DATA

### Place of Residence

Place of Residence is defined as the residence of the deceased for a death and as the residence of the mother for a stillbirth.

### Cause of Death Coding

Classification System: World Health Organization regulations specify that member nations classify cause of death in accordance with the current revision of the International Statistical Classification of Diseases, Injuries, and Causes of Death (ICD). The ICD has been revised approximately every ten years since 1900. The current revision, ICD-10, was implemented beginning with deaths occurring on January 1, 1999. For more information on the tenth revision, please visit the Centers for Disease Control and Prevention website at: <http://www.cdc.gov/nchs/about/major/dvs/icd10des.htm>.

Underlying Causes: Prior to 1949, under the first five revisions of the International Classification, causes of death were coded based on priority tables for multiple causes as set forth in *The Manual for Joint Causes of Death*. Under the sixth through the tenth revisions, the cause of death coded for tabulating death data is the "underlying cause" as determined from information provided on the death certificate by the attending physician or coroner. Currently, when more than one cause of death exists, the causes are ordered according to the Automated Classification of Medical Entities (ACME) system. ACME is a computerized program that evaluates both the ICD-10 code characteristics and the components of the death history recorded on the certificate to determine the primary, or "underlying," cause of death. The "underlying cause" may be defined as (a) the disease or injury that initiated the train of morbid events leading directly to death or (b) the circumstances, accident, or violence that produced the fatal injury.

Comparability of Statistics from ICD-9 to ICD-10: The decennial revisions of the International Classification of Diseases (ICD) have led to repeated breaks in the comparability of cause-of-death data. The introduction of the present concepts of classification in the sixth revision seriously affected the interpretation of mortality trends before and after 1949. **Comparability ratios** were subsequently computed by the United States to assist in the analysis of mortality trends by providing a measure of the degree of discontinuity. Following the recommendations of the International Conference for the Sixth Revision of the ICD, the United States used a dual coding method for constructing these comparability ratios after the introduction of each of the last five revisions, including the current ICD-10.

For a more detailed description of the role played by comparability ratios in interpreting the differences between ICD-9 and ICD-10, please see *Comparability of Cause of Death Between ICD-9 and ICD-10: Preliminary Estimates*, Vol. 49 No. 2 [DHHS Publication No. (PHS) 2001-1120 1-0355 (5/2001)], National Vital Statistics Reports, National Center for Health Statistics, Centers for Disease Control and Prevention, May 18, 2001. This publication can be downloaded from the National Center for Health Statistics website at: [http://www.cdc.gov/nchs/data/nvsr/nvsr49/nvsr49\\_02.pdf](http://www.cdc.gov/nchs/data/nvsr/nvsr49/nvsr49_02.pdf).

Cause of Death Ranking: Beginning with ICD-10 in 1999, cause of death rankings are based on the "List of 113 Selected Causes of Death" developed by the National Center for Health Statistics. This list was adapted from a basic list recommended by the World Health Organization for use with the Tenth Revision of the ICD. The categories "Major Cardiovascular Diseases" and "Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified" are not ranked. In addition, categories that begin with the words "Other" or "All Other" are not ranked. To determine the leading causes of death, the remaining categories are ranked according to the number of deaths that occur in the calendar year. When a category that

represents a subtotal is ranked (e.g. "Tuberculosis"), its component parts (in this example, "Respiratory tuberculosis" and "Other tuberculosis") are not ranked.

Codes Used for Cause of Death Ranking: The groupings of ICD-10 codes used to rank causes of death in this report are those used by the National Center for Health Statistics. The complete list of 113 selected causes is listed below:

Salmonella infections (A01, A02)	Malignant of lymphoid, Hematopoietic and related tissue (C81-C96)
Shigellosis and amebiasis (A03, A06)	Hodgkin's disease (C81)
Certain other intestinal infections (A04, A07-A09)	Non-Hodgkin's lymphoma (C82-C85)
Tuberculosis (A16-A19)	Leukemia (C91-C95)
Respiratory tuberculosis (A16)	Multiple myeloma and immuno-proliferative neoplasms (C88, C90)
Other tuberculosis (A17-A19)	Other and unspecified malignant neoplasms of lymphoid, hematopoietic and related tissue (C96)
Whooping cough (A37)	All other and unspecified malignant neoplasms (Other in C00-C97)
Scarlet fever and erysipelas (A38, A46)	In situ neoplasms, benign neoplasms and neoplasms of uncertain or unknown behavior (D00-D48)
Meningococcal infection (A39)	Anemias (D50-D6)
Septicemia (A40-A41)	Diabetes mellitus (E10-E14)
Syphilis (A50-A53)	Nutritional deficiencies (E40-E64)
Acute poliomyelitis (A80)	Malnutrition (E40-E46)
Arthropod-borne viral encephalitis (A83-A84, A85.2)	Other nutritional deficiencies (E50-E64)
Measles (B05)	Meningitis (G00, G03)
Viral Hepatitis (B15-B19)	Parkinson's disease (G20-G21)
Human Immunodeficiency Virus (HIV) disease (B20-B24)	Alzheimer's disease (G30)
Malaria (B50-B54)	Major cardiovascular disease (I00-I78)
Other and unspecified infectious and parasitic diseases and their Sequelae (Other in A00-B99)	Diseases of heart (I00-I09, I11, I13, I20, I51)
Malignant neoplasms (C00-C97)	Acute rheumatic fever and chronic rheumatic heart diseases (I00-I09)
Malignant neoplasms of lip, oral cavity and pharynx (C00-C14)	Hypertensive heart disease (I11)
Malignant neoplasm of esophagus (C15)	Hypertensive heart and renal disease (I13)
Malignant neoplasms of stomach (C16)	Ischemic heart diseases (I20-I25)
Malignant neoplasm of colon, rectum and anus (C18-C21)	Acute myocardial infarction (I21-I22)
Malignant neoplasms of liver and Intrahepatic bile ducts (C22)	Other acute ischemic heart diseases (I24)
Malignant neoplasm of pancreas (C25)	Other forms of chronic ischemic heart diseases (I20, I25)
Malignant neoplasm of larynx (C32)	Atherosclerotic cardiovascular disease, so described (I25.0)
Malignant neoplasms of trachea, Bronchus and lung (C33-C34)	All other forms of chronic ischemic heart disease (I20, I25.1- I25.9)
Malignant melanoma of skin (C43)	Other heart diseases (I26-I51)
Malignant neoplasm of breast (C50)	Acute and subacute endocarditis (I33)
Malignant neoplasm of cervix uteri (C53)	Diseases of pericardium and acute myocarditis (I30-I31, I40)
Malignant neoplasms of corpus uteri and uterus, part unspecified (C54-C55)	Heart failure (I50)
Malignant neoplasm of ovary (C56)	All other forms of heart disease (I26-I28, I34-I38, I42-I49, I51)
Malignant neoplasm of prostate (C61)	Essential (primary) hypertension and hypertensive renal disease (I10, I12)
Malignant neoplasm of kidney and renal pelvis (C64-C65)	Cerebrovascular diseases (I60-I69)
Malignant neoplasm of bladder (C67)	Atherosclerosis (I70)
Malignant neoplasms of meninges, brain and other parts of central nervous system (C70-C72)	

Other diseases of the circulatory system (I71-I78)  
 Aortic aneurysm and dissection (I71)  
 Other diseases of arteries, arterioles and capillaries (I72-I78)  
 Other disorders of the circulatory system (I80-I99)  
 Influenza and pneumonia (J10-J18)  
 Influenza (J10-J11)  
 Pneumonia (J12-J18)  
 Other acute lower respiratory infections (J20-J22)  
 Acute bronchitis and bronchiolitis (J20-J21)  
 Unspecified acute lower respiratory infection (J22)  
 Chronic lower respiratory diseases (J40- J47)  
 Bronchitis, chronic and unspecified (J40-J42)  
 Emphysema (J43)  
 Asthma (J45- J46)  
 Other chronic lower respiratory diseases (J44, J47)  
 Pneumoconioses and chemical effects (J60- J66, J68)  
 Pneumonitis due to solids and liquids (J69)  
 Other diseases of respiratory system (J00- J06, J30- J39, J67, J70- J98)  
 Peptic ulcer (K25-K28)  
 Diseases of appendix (K35- K38)  
 Hernia (K40-K46)  
 Chronic liver disease and cirrhosis (K70, K73-K74)  
 Alcoholic liver disease (K70)  
 Other chronic liver disease and cirrhosis (K73-K74)  
 Cholelithiasis and other disorders of gallbladder (K80-K82)  
 Nephritis, nephrotic syndrome and nephrosis (N00- N07, N17-N19, N25, N27)  
 Acute and rapidly progressive nephritic and nephrotic syndrome (N00- N01, N04)  
 Chronic glomerulonephritis, nephritis & nephritis unspecified, & renal sclerosis unspecified (N02-N03, N05- N07, and N26)  
 Renal failure (N17-N19)  
 Other disorders of kidney (N25, N27)  
 Infections of kidney (N10- N12, N13.6, N15.1)  
 Hyperplasia of prostate (N40)  
 Inflammatory diseases of female pelvic organs (N70- N76)  
 Pregnancy, childbirth and the puerperium (O00-O99)  
 Pregnancy with abortive outcome (O00- O07)  
 Other complications of pregnancy, Childbirth and the puerperium (O10-O99)  
 Certain conditions originating in the perinatal period (P00- P96)  
 Congenital malformations, deformations and chromosomal abnormalities (Q00-Q99)  
 Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified (R00- R99)  
 All other diseases (Residual) (Other in D65- N98)

Accidents (V01-X59, Y85-Y86)  
 Transport accidents (V01- V99, Y85)  
 Motor vehicle accidents (V02- V04, V09.0, V09. 2, V12-V14, V19.0, V19.2, V19.4- V19.6, V20- V79, V80.3- V80.5, V81.0- V81.1, V82.0- V82.1, V83-V86, V87.0- V87.8, V88.0- V88.8, V89.0, V89.2)  
 Other land transport accidents (V01, V05- V06, V09.1, V09.3, V09.9, V10- V11, V15- V18, V19.3, V19.8 ,V19.9,V80.0- V80.2, V80.6- V80.9, V81.2- V81.9, V82.2-V82.9, V87.9, V88.9,V89.1,V8-9.3,V89.9)  
 Water, air and space, and other and unspecified transport accidents and their sequelae (V90-V99, Y85)  
 Nontransport accidents (W00- X59, Y86)  
 Falls (W00-W19)  
 Accidental discharge of Firearms (W32- W34)  
 Accidental drowning and Submersion (W65- W74)  
 Accidental exposure to smoke, fire and flames (X00- X09)  
 Accidental poisoning and exposure to noxious substances (X40- X49)  
 Other and unspecified nontransport accidents and their sequelae (W20-W31,W35- W64,W75-W99, X10 X39,X50- X59,Y86)  
 Intentional self-harm (suicide) (X60- X84, Y87.0)  
 Intentional self-harm (suicide) by discharge of firearms (X72- X74)  
 Intentional self-harm (suicide) by other and unspecified means and their sequelae (X60- X71, X75- X84, Y87.0)  
 Assault (homicide) (X85, Y09, Y87.1)  
 Assault (homicide) by discharge of firearms (X93- X95)  
 Assault (homicide) by other and unspecified means and their sequelae (X85- X92, X96- Y09, Y87.1)  
 Legal intervention (Y35, Y89.0)  
 Events of undetermined intent (Y10-Y34, Y87.2, Y89.0- 9)  
 Discharge of firearms, undetermined intent (Y22- Y24)  
 Other and unspecified events of undetermined intent and their sequelae (Y10-Y21, Y25- Y34, Y87.2, Y89. 9)  
 Operations of war and their sequelae (Y36, Y89.1)  
 Complications of medical and surgical care (Y40-Y84, Y88)

Codes Used for Cause of Infant Death: The complete list of 130 selected causes used by National Center for Health Statistics is shown below:

Certain infectious and parasitic diseases (A00-B99)	Volume depletion, disorders of fluid, electrolyte and acid-base balance (E86-E87)
Certain intestinal infectious diseases (A00-A08)	All other endocrine, nutritional and metabolic diseases (E00-E32, E34.0-E34.2, E34.4-E34.9, E65-E83, E85, E88)
Diarrhea and gastroenteritis of presumed infectious origin (A09)	Diseases of the nervous system (G00-G98)
Tuberculosis (A16-A19)	Meningitis (G00, G03)
Tetanus (A33, A35)	Infantile spinal muscular atrophy, type I (Werdnig-Hoffman) (G12.0)
Diphtheria (A36)	Infantile cerebral palsy (G80)
Whooping cough (A37)	Anoxic brain damage, not elsewhere classified (G93.1)
Meningococcal infection (A39)	Other diseases of nervous system (G04, G06-G11, G12.1-G12.9, G20-G72, G81-G92, G93.0, G93.2-G93.9, G95-G98)
Septicemia (A40-A41)	Diseases of the ear and mastoid process (H60-H93)
Congenital syphilis (A50)	Diseases of the circulatory system (I00-I99)
Gonococcal infection (A54)	Pulmonary heart disease and diseases of pulmonary circulation (I26-I28)
Viral diseases (A80-B34)	Pericarditis, endocarditis and myocarditis (I30, I33, I40)
Acute poliomyelitis (A80)	Cardiomyopathy (I42)
Varicella (chickenpox) (B01)	Cardiac arrest (I46)
Measles (B05)	Cerebrovascular diseases (I60-I69)
Human immunodeficiency virus (HIV) disease (B20-B24)	All other diseases of circulatory system (I00-I25, I31, I34-I38, I44-I45, I47-I51, I70-I99)
Mumps (B26)	Diseases of the respiratory system (J00-J98)
Other and unspecified viral diseases (A81-B00, B02-B04, B06-B19, B25, B27-B34)	Acute upper respiratory infections (J00-J06)
Candidiasis (B37)	Influenza and pneumonia (J10-J18)
Malaria (B50-B54)	Influenza (J10-J11)
Pneumocystosis (B59)	Pneumonia (J12-J18)
Other and unspecified infectious and parasitic diseases and their sequelae (A20-A32, A38, A42- A49, A51-A53, A55-A79, B35-36, B38-B49, B55-B58, B60-B99)	Acute bronchitis and acute bronchiolitis (J20-J21)
Neoplasms (C00-D48)	Bronchitis, chronic and unspecified (J40-J42)
Malignant neoplasms (C00-C97)	Asthma (J45-J46)
Hodgkin's disease and non-Hodgkin's lymphomas (C81-C85)	Pneumonitis due to solids and liquids (J69)
Leukemia (C91-C95)	Other and unspecified diseases of respiratory system (J22, J30-J39, J43-J44, J47-J68, J70-J98)
Other and unspecified malignant neoplasms (C00-C80, C88, C90, C96-C97)	Diseases of the digestive system (K00-K92)
In situ neoplasms, benign neoplasms and neoplasms of uncertain or unknown behavior (D00-D48)	Gastritis, duodenitis, and noninfective enteritis and colitis (K29, K50-K55)
Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism (D50-D89)	Hernia of abdominal cavity and intestinal obstruction without hernia (K40-K46, K56)
Anemias (D50-D64)	All other and unspecified diseases of digestive system (K00-K28, K30-K38, K57-K92)
Hemorrhagic conditions and other diseases of blood and blood-forming organs (D65-D76)	Diseases of the genitourinary system (N00-N98)
Certain disorders involving the immune mechanism (D80-D89)	Renal failure and other disorders of kidney (N17-N19, N25, N27)
Endocrine, nutritional and metabolic diseases (E00-E88)	Other and unspecified diseases of genitourinary system (N00-N15, N20-N23, N26, N28-N98)
Short stature, not elsewhere classified (E34.3)	
Nutritional deficiencies (E40-E64)	
Cystic fibrosis (E84)	

Certain conditions originating in the perinatal period (P00-P96)

Newborn affected by maternal factors and by complications of pregnancy, labor and delivery (P00-P04)

Newborn affected by maternal hypertensive disorders (P00.0)

Newborn affected by other maternal conditions which may be unrelated to present pregnancy (P00.1-P00.9)

Newborn affected by maternal complications of pregnancy (P01)

Newborn affected by incompetent cervix (P01.0)

Newborn affected by premature rupture of membranes (P01.1)

Newborn affected by multiple pregnancy (P01.5)

Newborn affected by other maternal complications of pregnancy (P01.2-P01.4, P01.6-P01.9)

Newborn affected by complications of placenta, cord and membranes (P02)

Newborn affected by complications involving placenta (P02.0-P02.3)

Newborn affected by complications involving cord (P02.4-P02.6)

Newborn affected by chorioamnionitis (P02.7)

Newborn affected by other and unspecified abnormalities of membranes (P02.8-P02.9)

Newborn affected by other complications of labor and delivery (P03)

Newborn affected by noxious influences transmitted via placenta or breast milk (P04)

Disorders related to length of gestation and fetal malnutrition (P05-P08)

Slow fetal growth and fetal malnutrition (P05)

Disorders related to short gestation and low birth weight, not elsewhere classified (P07)

Extremely low birth weight or extreme immaturity (P07.0, P07.2)

Other low birth weight or preterm (P07.1, P07.3)

Disorders related to long gestation and high birth weight (P08)

Birth trauma (P10-P15)

Intrauterine hypoxia and birth asphyxia (P20-P21)

Intrauterine hypoxia (P20)

Birth asphyxia (P21)

Respiratory distress of newborn (P22)

Other respiratory conditions originating in the perinatal period (P23-P28)

Congenital pneumonia (P23)

Neonatal aspiration syndromes (P24)

Interstitial emphysema and related conditions originating in the perinatal period (P25)

Pulmonary hemorrhage originating in the perinatal period (P26)

Chronic respiratory disease originating in the perinatal period (P27)

Atelectasis (P28.0-P28.1)

All other respiratory conditions originating in the perinatal period (P28.2-P28.9)

Infections specific to the perinatal period (P35-P39)

Bacterial sepsis of newborn (P36)

Omphalitis of newborn with or without mild hemorrhage (P38)

All other infections specific to the perinatal period (P35, P37, P39)

Hemorrhagic and hematological disorders of newborn (P50-P61)

Neonatal hemorrhage (P50-P52, P54)

Hemorrhagic disease of newborn (P53)

Hemolytic disease of newborn due to isoimmunization and other perinatal jaundice (P55-P59)

Hematological disorders (P60-P61)

Syndrome of infant of a diabetic mother and neonatal diabetes mellitus (P70.0-P70.2)

Necrotizing enterocolitis of newborn (P77)

Hydrops fetalis not due to hemolytic disease (P83.2)

Other perinatal conditions (P29, P70.3-P70.9, P71-P76, P78- P81, P83.0-P83.1, P83.3-P83.9, P90- P96)

Congenital malformations, deformations and chromosomal abnormalities (Q00-Q99)

Anencephaly and similar malformations (Q00)

Congenital hydrocephalus (Q03)

Spina bifida (Q05)

Other congenital malformations of nervous system (Q01-Q02, Q04, Q06-Q07)

Congenital malformations of heart (Q20-Q24)

Other congenital malformations of circulatory system (Q25-Q28)

Congenital malformations of respiratory system (Q30-Q34)

Congenital malformations of digestive system (Q35-Q45)

Congenital malformations of genitourinary system (Q50-Q64)

Congenital malformations and deformations of musculoskeletal system, limbs and integument (Q65-Q85)

Down's syndrome (Q90)

Edward's syndrome (Q91.0-Q91.3)

Patau's syndrome (Q91.4-Q91.7)

Other congenital malformations and deformations (Q10-Q18, Q86-Q89)

Other chromosomal abnormalities, not elsewhere classified (Q92-Q99)

Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified (R00-R99)

Sudden infant death syndrome (R95)

Other symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified (R00-R53, R55-R94, and R96-R99)

All other diseases (Residual) (F01-F99, H00-H57, L00-M99)

External causes of mortality (V01-Y89)



Accidents (V01-X59, Y85-Y86)  
 Transport accidents (V01-V99, Y85)  
 Motor vehicle accidents (V02- V04,V09.0,V09.2,V12-V14,V19.0-V19.2,V19.4-V19.6,V20-V79, V80.3-V80.5,V81.0-V81.1,V82.0-V82.1,V83-V86,V87.0-V87.8,V88.0-V88.8,V89.0,V89.2)  
 Other and unspecified transport accidents & their sequelae (V01,V05-V06,V09.1,V09.3-V09.9,V10-V11,V15-18,V19.3,V19.8-V19.9,V80.0-V80.2,V80.6-V80.9,V81.2-V81.9,V82.2-V82.9,V87.9,V88.9,V89.1,V89.3,V89.9,V90-V99,Y85)  
 Falls (W00-W19)  
 Accidental discharge of firearms (W32-W34)  
 Accidental drowning and submersion (W65-W74)  
 Accidental suffocation and strangulation in bed (W75)  
 Other accidental suffocation and strangulation (W76-W77, W81-W84)  
 Accidental inhalation and ingestion of food or other objects causing obstruction of respiratory tract (W78-W80)

Accidents caused by exposure to smoke, fire and flames (X00-X09)  
 Accidental poisoning and exposure to noxious substances (X40-X49)  
 Other and unspecified accidents and their sequelae (W20-W31, W35-W64, W85-W99, X10-X39, X50-X59, Y86)  
 Assault (homicide) (X85-Y09, Y87.1)  
 Assault (homicide) by hanging, strangulation and suffocation (X91)  
 Assault (homicide) by discharge of firearms (X93-X95)  
 Neglect, abandonment and other maltreatment syndromes (Y06-Y07)  
 Assault (homicide) by other and unspecified means and their sequelae (X85-X90,X92,X96-X99,Y00-Y05,Y08-Y09,Y87.1)  
 Complications of medical and surgical care (Y40-Y84, Y88)  
 Other external causes and their sequelae (X60-X84, Y10-Y36, Y87.0, Y87.2, Y89)

Codes Used for Cause of Maternal Death: The complete list of selected causes used by National Center for Health Statistics is shown below:

TOTAL  
 (O00-O95, O98-O99, A34)  
 Pregnancy with abortive outcome (O00-O07)  
 Ectopic pregnancy (O00)  
 Spontaneous abortion (O03)  
 Medical abortion (O04)  
 Other abortion (O05)  
 Other and unspecified pregnancy with abortive outcome (O01-O02, O06-O07)  
 Other direct obstetric deaths (A34, O10-O92)  
 Eclampsia and pre-eclampsia (O11, O13-O16)  
 Hemorrhage of pregnancy and childbirth and placenta previa (O20, O44, O45, O46, O67, and O72)

Complications predominantly related to the puerperium (A34, O85-O92)  
 Obstetrical tetanus (A34)  
 Obstetric embolism (O88)  
 Other complications predominately related to the Puerperium (O85-O87, O89-O92)  
 All other direct obstetric causes (O10, O12, O21-O43, O47-O66, O68-O71, O73-O75)  
 Obstetric death of unspecified cause (O95)  
 Indirect obstetric deaths (O98-O99)

## DEFINITIONS

The following is a glossary of technical terms used in this report:

**AGE-ADJUSTED DEATH RATE:** a rate calculated to adjust for differences in the age structure in separate populations. The changes in the age-structure in a population can increase or decrease the likelihood of death in that population. When comparing mortality data from different populations, rates adjusted for differences in age distribution are used because age is the most significant characteristic related to disease and death. Age-adjusted death rates are artificial numbers, designed to be used only for comparisons of different populations. Unlike crude death rates, age-adjusted rates do not measure true rates of death in a population. They should not be compared directly to crude death rates.

**AGE-SPECIFIC BIRTH RATE:** a measure of the number of live births in a specific age group during a given period. Age-specific rates are calculated by dividing the number of live births occurring in a specified age group during one year by the estimated population of that age group, then multiplying the quotient by 1,000. The rate is expressed as the number of live births per 1,000 population. Age-specific rates make valid comparisons among age groups possible because age-specific rates limit their scope to narrow age ranges, thereby greatly reducing the effect that age might have on comparison of births across age groups.

**APGAR SCORE:** a composite measure of the physical health of an infant, assessed at one and five minutes after birth, and used to predict the infant's chances of survival. Five easily identifiable characteristics - heart rate, respiratory effort, muscle tone, reflex irritability, and color - are each assessed on a scale of zero to two, with two being optimal. The Apgar score is the sum of these scores; a score of seven or higher (to a maximum of ten) indicates that the infant is in good physical condition.

**BIRTH RATE (CRUDE BIRTH RATE):** a measure of the number of live births in a population during a given period. Birth rates are calculated by dividing the number of live births occurring in a given population during one year by the estimated population, then multiplying the quotient by 1,000. Rates are expressed as the number of live births per 1,000 population. Birth rates are affected by the number and age distribution of women of childbearing age. Because crude birth rates relate the number of live births to the total population in an area, without regard to the age or sex distribution of the population, they are useful in projecting population changes in the area.

**CESAREAN SECTION:** the surgical delivery of the newborn while the mother is under general anesthesia. A primary C-section refers to the first delivery by C-section. Cesarean section is usually the result of an abnormal delivery situation, once the mother has already gone into labor. The physician may choose to perform a C-section because the infant is presenting in an abnormal and potentially harmful position, as in breech birth position. Medical emergencies can also require a C-section delivery. Such emergencies include fetal distress and hemorrhaging due to ruptured placenta. A repeat C-section is a Cesarean delivery in which a woman has previously delivered by a C-section. A vaginal birth after C-section is a vaginal delivery to a woman who has previously delivered by C-section.

**COMPARABILITY RATIO:** Measure of the degree of discontinuity between revisions of the International Classification of Diseases (ICD) for a particular cause of death. Please see the *Death Data* section of these *Technical Notes*, on page 160.

**CONGENITAL MALFORMATION:** a birth defect including a wide range of major and minor abnormalities that are noted at the time of birth. They can be the result of a wide range of factors including genetic disease, teratogens (drugs or other substances that cause fetal malformation), environmental factors, heredity, and nutrition. However, the causes of many birth defects are unknown.

**COVENANT MARRIAGE:** a marriage in which the couple agrees to complete premarital counseling from a clergyman of a religious sect or from a marriage counselor. The couple signs a notarized affidavit to the effect that the counselor has discussed with them the commitment to the marriage for life, the obligation to seek marital counseling if problems arise in the marriage, and the exclusive grounds for legal separation or divorce. These grounds include: adultery by the other spouse; commission of a felony by the other spouse and sentence of imprisonment at hard labor or death; abandonment by the other spouse for one year; physical or sexual abuse of a spouse or of a child of either spouse; living separately for two years; habitual intemperance; and cruel or severe ill treatment by the other spouse. The waiting period for divorce after legal separation is one year and six months if there is a minor in the family, and one year in all other cases.

**DEATH RATE (CRUDE DEATH RATE):** a measure of the number of deaths in a population during a given period. Death rates are calculated by dividing the number of deaths occurring in a given population during one year by the estimated population, then multiplying the quotient by 100,000. The rate is expressed as the number of deaths per 100,000 population. Crude death rates are useful for examining actual mortality in a geographic area or population because they describe the rate at which deaths occur in the total population, without regard to sub-population differences in factors (such as age) that influence death. Caution must be used when comparing crude rates from different populations, because crude rates can be affected by differences in the composition of the two populations. For example, areas that attract retirees usually have higher crude death rates than areas with large numbers of young families. See *AGE-ADJUSTED DEATH RATE*.

**DIVORCE RATE:** a measure of divorces occurring in a population during a given period. Divorce rates are calculated by dividing the number of divorces occurring in a given population during one year by the estimated population, then multiplying the quotient by 1,000. The rate is expressed as the number of divorces per 1,000 population.

**EARLY ABORTION:** an abortion that is performed at or before 8 weeks gestation.

**FERTILITY RATE:** a rate that relates the total number of births (to women of all ages) in a population to the number of women most likely to bear children – those aged 15 through 44 years. The fertility rate is calculated by dividing the total number of live births occurring in a given population during one year by the estimated population of women aged 15 through 44 years, then multiplying the quotient by 1,000. The rate is expressed as the number of live births per 1,000 women aged 15 through 44 years. Fertility rates are useful for comparisons of fertility among age, race, and socioeconomic groups.

**FETAL DEATH:** death prior to the complete expulsion or extraction from its mother of a product of human conception that, after such expulsion or extraction, never breathes or shows any other evidence of life. (The term "fetal death" was defined on an all-inclusive basis to end confusion arising from use of such terms as stillbirth, abortion, and miscarriage.)

**FETAL MORTALITY RATE:** a measure of fetal deaths occurring in a population during a given period. Fetal mortality rates are calculated by dividing the number of fetal deaths in a given population during a given time period by the number of live births

plus fetal deaths occurring in the population during the same time period, then multiplying the quotient by 1,000. Fetal mortality rates are expressed as the number of fetal deaths per 1,000 live births plus fetal deaths.

**FIRST BIRTH RATE:** a measure of the number of first births, to mothers in a particular age group, during a given period. First birth rates are calculated by dividing the number of first births to mothers in a particular age group during one year by the total female population in that age group, then multiplying the quotient by 1,000. The rates are expressed as the number of births per 1,000 women in that age group. First birth rates are helpful in assessing changes over time in the age at which women begin bearing children.

**GESTATIONAL AGE (Live Birth data):** the interval between the first day of the mother's last normal menstrual period and the date of birth. Physicians use several different methods to estimate gestational age, including computing the interval between the first day of the mother's last normal menstrual period (LMP) and the date of birth, or determining a clinical estimate based on examination of the newborn. Standardized methods of measurement for determination of gestational age are difficult, especially among at-risk pregnancies in which minimal or no prenatal ascertainment are made. Louisiana Birth Certificates record both the "Date Last Normal Menses Began" and the "Clinical Estimate of Gestation." LMP is subject to error from imperfect maternal recall or misidentification of the last normal menstrual period because of post-conception bleeding, delayed ovulation, or intervening early miscarriage. Therefore, the physician's clinical estimate of gestation is used to determine gestational age in this report.

**GESTATIONAL AGE (Fetal Death data):** the interval between the first day of the mother's last normal menstrual period and the date of delivery. Prior to 1995, "Clinical Estimate of Gestation" was not recorded on Louisiana's Fetal Death Certificate. Consequently, gestational ages reported for years prior to 1995 were calculated by subtracting the "Date Last Normal Menses Began" from the "Date of Delivery," as recorded on the Fetal Death Certificate. Beginning with the *1997 Louisiana Vital Statistics Report*, gestational ages for fetal deaths occurring in or after 1995 are reported based upon the National Center for Health Statistics formula for calculation of gestational age for fetal deaths. This formula calculates gestational age by combining information collected in the "Date Last Normal Menses Began" and "Clinical Estimate of Gestation" sections of the Fetal Death Certificate.

**HEBDOMADAL DEATH:** a representation of deaths occurring to infants under 7 days of age. See *PERINATAL MORTALITY*.

**HEBDOMADAL MORTALITY RATE:** a measure of deaths to infants under 7 days of age during a given period. Hebdomadal mortality rates are calculated by dividing the number of deaths to infants under 7 days of age occurring in a given population during one year by the number of live births occurring during that year, then multiplying the quotient by 1,000. The rate is expressed as the number of deaths to infants under age 7 days, per 1,000 live births.

**ICD-10:** the tenth revision of the International Statistical Classification of Diseases, Injuries, and Causes of Death. Please see the *Death Data* section of these *Technical Notes*.

**INDUCED TERMINATION OF PREGNANCY (INDUCED ABORTION):** the purposeful interruption of pregnancy with intention other than to produce a live infant or to remove a dead fetus, in which the intervention does not result in a live birth.

**INFANT MORTALITY:** a representation of deaths occurring in the first year of life. Most infant deaths are preventable. The risk of infant death is increased by giving birth at a very young age (<19 years) or older age (>40 years), leaving less than 2 years between births, or giving birth under conditions of poor maternal health or poor nutrition. Chemical toxins such as alcohol, drugs, and tobacco smoke also increase the risk. Most of these factors are associated with low birthweight. A newborn might be low birthweight because he/she has been compromised by one of the factors noted above or simply because he/she was born too soon ("prematurely"). After the first month of life, poor infant nutrition, poor hygiene, and infectious disease all increase the risk of infant mortality.

**INFANT MORTALITY RATE:** a measure of deaths to infants under 1 year of age during a given period. Infant mortality rates are calculated by dividing the number of deaths to infants under 1 year of age occurring in a given population during one year by the number of live births occurring during that year, then multiplying the quotient by 1,000. The rate is expressed as the number of infant deaths per 1,000 live births.

**LATE ABORTION:** an abortion that is performed at or after 16 weeks gestation.

**LIVE BIRTH:** a birth that shows any sign of life after delivery, irrespective of the duration of pregnancy. Sign of life is considered the breathing or showing any other evidence of life, such as beating of the heart, pulsation of the umbilical cord, or the definite movement of voluntary muscles, whether or not the umbilical cord has been cut or the placenta is attached.

**LOW BIRTHWEIGHT:** a live birth weighing less than 2,500 grams (approximately 5 pounds 8 ounces). The percentage of low birthweight is the number of these births in a population during a given time interval divided by the total number of live births reported in that population during the same time interval. Low birthweight usually results from a shortened gestational period, which often is linked to preventable factors such as lack of prenatal care, maternal smoking, use of alcohol and other drugs, and pregnancy before the age of 18 years. Other risk factors for low birthweight include low socioeconomic level, low maternal weight gain, low pregnancy weight, first births, female sex, short maternal stature, prior low birthweight births, maternal illness, fetal infection, and a variety of metabolic and genetic disorders. Low birthweight infants are more likely than normal weight infants to have brain damage, lung and liver disease, subnormal growth, developmental problems, mild learning disorders, attention disorders, and developmental impairments. See *VERY LOW BIRTHWEIGHT*.

**MALE/FEMALE BIRTH RATIO:** a measure of the number of males born for every thousand females born in a given time period. For example, a ratio of 1.036 means 1,036 males were born for every 1000 females born during a given time period.

**MARRIAGE RATE:** a measure of marriages occurring in a population during a given period. Marriage rates are calculated by dividing the number of marriages occurring in a given population during one year by the estimated population, then multiplying the quotient by 1,000. The rate is expressed as the number of marriages per 1,000 population. The marriage rate would be more representative of resident marriages if it were calculated using the number of marriages to *residents* of an area, rather than the number of marriages *occurring* in an area. Marriage counts by residence of bride and groom are difficult to quantify, however, because couples often choose to obtain marriage licenses and/or to marry outside of their residence areas.

**MATERNAL MORTALITY:** a representation of deaths of women due to complications of pregnancy and childbirth. Maternal mortality rates are calculated by dividing the number of maternal deaths in a given time period by the number of live births in that same time period, then multiplying the quotient by 100,000. Because maternal deaths occur infrequently, they are expressed as

deaths per 100,000 live births. Ideally, the rate should be calculated by dividing the number of deaths by the number of all pregnancies even those that do not result in a live birth. However, no system exists for gathering accurate and complete information regarding of miscarriages and abortions; as an alternative, the number of live births is used as an estimate of the number of pregnancies. These deaths may be related to previously existing maternal health problems, or they can occur from acute conditions arising during pregnancy, labor, delivery, and the period thereafter. Studies indicate that some maternal deaths caused by violence sustained as a result of pregnancy are not coded as pregnancy-related deaths.<sup>2</sup> Misidentification of cause of death is thought to result in under-reporting of maternal deaths.

**MODIFIED KESSNER INDEX:** the method used in Louisiana to measure adequacy of prenatal care. This index defines prenatal care as adequate if the first prenatal visit occurred in the first trimester of pregnancy, and if the total number of visits was appropriate to the gestational age of the baby at birth. However, because these measures assess neither the quality nor the content of prenatal care, they must be recognized only as estimates of the adequacy of prenatal care. For details of the modified Kessner Index, please refer to the *Birth Data* section of these *Technical Notes*, on page 154.

**MORTALITY:** a representation of the incidence of death. In Louisiana, as in the nation, most deaths result from a few major causes, such as heart disease, cancer, and stroke. Many people have the genetic potential to live to age 85 years, and some have the potential to live well beyond that age. Despite this potential, the average age at death in the United States is between 65 and 79 years. Many of the leading causes of death for people between the ages of 25 and 65 are preventable, wholly or in part, through changes in lifestyle. Cause-of-death data are readily available from death certificates, and this information can be used to identify areas where behavioral changes may be most effective in increasing length of life. Leading causes of death such as heart disease, cancer, unintentional injuries, stroke, and liver disease all have been associated with risk factors related to lifestyle.

**NEONATAL MORTALITY:** a representation of infant deaths occurring during the first 28 days of life. Deaths during this period are generally due to hereditary factors and factors affecting the mother before and during pregnancy. Three-quarters of these deaths are associated with low birthweight. The distinction between neonatal and postneonatal mortality has been blurred in recent years, because of increased survival of premature infants due to advances in neonatology.

**NEONATAL MORTALITY RATE:** a measure of deaths occurring among infants under 28 days of age during a given period. Neonatal mortality rates are calculated by dividing the number of deaths occurring to infants under 28 days of age in a given population during one year by the number of live births occurring during that year, then multiplying the quotient by 1,000. The rate is expressed as the number of deaths to infants under age 28 days, per 1,000 live births.

**PERINATAL MORTALITY:** a representation of deaths of unborn fetuses after 20 weeks of gestation (stillbirths) and deaths within 7 days of birth. Perinatal mortality is influenced by conditions that affect the mother before and during pregnancy, and by health problems (e.g., genetic, chromosomal, infectious and so on) that affect the infant.

**PERINATAL MORTALITY RATE:** a measure of stillbirths (fetal deaths) plus deaths to infants under 7 days of age during a given period. Perinatal mortality rates are calculated by dividing the number of fetal deaths plus deaths to infants under 7 days

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<sup>2</sup> McFarlane J, Campbell JC, Sharps P, Watson K. "Abuse during pregnancy and femicide: urgent implications for women's health" *Obstetrics and Gynecology* 100:1 (July 2002); 27-36.

of age occurring in a given population during one year by the number of stillbirths plus live births occurring during that year, then multiplying the quotient by 1,000. The rate is expressed as the number of fetal deaths plus deaths to infants under age 7 days, per 1,000 stillbirths plus live births.

**POSTNEONATAL MORTALITY:** a representation of deaths occurring to infants aged 28 days through 364 days. Postneonatal mortality is influenced by environmental factors, such as nutrition, hygiene, and accidents. Advances in neonatology have blurred the distinction between neonatal and postneonatal mortality, given the improved survival rate of premature infants.

**POSTNEONATAL MORTALITY RATE:** a measure of deaths occurring among infants aged 28 days through 364 days during a given period. Postneonatal mortality rates are calculated by dividing the number of deaths occurring to infants aged 28 days through 364 days in a given population during one year by the number of live births occurring during that year, then multiplying the quotient by 1,000. The rate is expressed as the number of deaths to infants aged 28 days through 364 days, per 1,000 live births.

**PRENATAL CARE:** health care, counseling, and related services provided during pregnancy to assure the best possible health for both mother and child. Care should start in the first trimester and continue throughout pregnancy. One major focus of such care is screening/monitoring to identify conditions that might threaten the mother or the child. A second major focus is counseling and guidance relative to diet, alcohol, tobacco, and other health concerns. Other services, for those who qualify, are social and financial counseling, WIC, and Medicaid.

**PRE-TEEN BIRTH:** a birth to a woman younger than 13 years old.

**RATE:** a measure used to make comparisons among different groups. A rate is the number of specific health events in a given time period divided by the average population during that same period, then multiplied by a number such as 1,000 or 100,000 to facilitate comparison between different populations. Multiplying by 100 results in a percentage of events per time period, which is an expression of the number of people out of 100 who experienced the event during the period. Most rates, however, are given as the number out of 1,000 or 100,000, because when rates are based on very small numbers, it is easier to understand the numbers and to compare the rates this way. Rates can be used to measure changes in the occurrence of health events between different time periods and geographical areas etc.

**RESIDENCE:** defined as that of the deceased for a death and as that of the mother for a birth or stillbirth. Births and deaths occurring in institutions in Louisiana are reallocated to the place of previous residence, regardless of length of stay in the institution. All tables in this publication refer to resident events except as noted.

**RACE:** the category that is shown on the certificate. Tables that include race classification are tabulated by white, black, and other, where other includes all races not white or black. Beginning in 1989, birth data are presented by race of mother rather than inferred race of child.

**SPONTANEOUS FETAL DEATH:** a fetal death that is not an induced termination of pregnancy. Spontaneous fetal deaths of 20 weeks or more duration of pregnancy, or with a weight of 350 grams or more, must be reported on a Fetal Death (Stillbirth) certificate. For details of the Louisiana and National Center for Health Statistics definitions of fetal death, please refer to the *Spontaneous Fetal Death Data* section of these *Technical Notes*, on page 157.

**TEEN BIRTH:** a birth to a woman aged 13 to 19 years. See *PRE-TEEN BIRTH*.

**UNDERLYING CAUSE OF DEATH:** the disease or injury that initiated the sequence of events leading to death. Please see the *Death Data* section of these *Technical Notes*, on page 160.

**VERY LOW BIRTHWEIGHT:** a live birth weighing less than 1,500 grams (approximately 3 pounds 5 ounces). The percent very low birthweight is the number of these births in a population during a given time interval, divided by the total number of live births with known birthweight reported in that population during the same time interval. Very low birthweight infants are at greater risk of mortality and long-term disability than higher weight infants. See *LOW BIRTHWEIGHT*.



## CALCULATION OF RATES AND RATIOS\*

$$\text{BIRTH RATE} = \frac{\text{number of live births}}{\text{estimated population}} \times 1,000$$

$$\text{FERTILITY RATE} = \frac{\text{number of live births}}{\text{estimated female population 15 - 44 years old}} \times 1,000$$

$$\text{AGE-SPECIFIC FERTILITY RATE} = \frac{\text{number of live births to women in specific age group}}{\text{estimated female population in that specific age group}} \times 1,000$$

$$\text{TOTAL FERTILITY RATE}^{**} = \text{sum of the age specific fertility rates (in 5-year age groups) multiplied by 5}$$

$$\text{FETAL DEATH RATES} = \frac{\text{number of reportable fetal deaths}}{\text{number of live births + fetal deaths}} \times \begin{matrix} 1,000 \\ \text{(or 100,000,} \\ \text{as specified)} \end{matrix}$$

$$\text{DEATH RATE} = \frac{\text{number of deaths}}{\text{estimated population}} \times \begin{matrix} 1,000 \\ \text{(or 100,000,} \\ \text{as specified)} \end{matrix}$$

$$\text{AGE-SPECIFIC DEATH RATE} = \frac{\text{number of deaths in specific age group}}{\text{estimated population in that specific age group}} \times \begin{matrix} 1,000 \\ \text{(or 100,000,} \\ \text{as specified)} \end{matrix}$$

\* All rates and ratios in this report are per calendar year.

\*\*If divided by 1,000, the total fertility rate approximates the completed family size per woman. This assumes that throughout their reproductive period, women will experience the same age specific birthrates observed in the childbearing population in the current year.

<b>AGE-ADJUSTED DEATH RATE= (Direct Method)</b>	<b>total number of expected deaths in a standard population</b> (if the persons in this population had experienced the same age specific death rates as population being adjusted) ----- <b>total standard population</b>	<b>1,000</b> X	(or 100,000, as specified)
<b>INFANT MORTALITY RATE=</b>	<b>number of deaths under 1 year of age</b> ----- <b>total number of live births</b>	<b>1,000</b> X	(or 100,000, as specified)
<b>HEBDOMADAL MORTALITY RATE=</b>	<b>number of deaths under 7 days of age</b> ----- <b>total number of live births</b>	X	1,000
<b>NEONATAL MORTALITY RATE=</b>	<b>number of deaths under 28 days old</b> ----- <b>total number of live births</b>	X	1,000
<b>PERINATAL MORTALITY RATE=</b>	<b>fetal deaths + deaths under 7 days old</b> ----- <b>total number of live births + fetal deaths</b>	X	1,000
<b>MATERNAL MORTALITY RATE***=</b>	<b>number of deaths due to Complications of Pregnancy, Childbirth, and Puerperium</b> ----- <b>total number of live births</b>	X	100,000

\*\*\*In reports prior to 1972 the Maternal Death rate was expressed "per 10,000 live births".